WHAT IS CLAIMED:

1.   A method of identifying whether a plurality of image frames may contain a common object of interest comprising the steps of:

receiving a plurality of image frames in an image processing apparatus wherein said plurality of image frames are generated by at least one imaging device;

applying at least one filter to each of said plurality of image frames to generate a discrete output value, wherein each filter screens for a differentiable characteristic associated with an object of interest that is unique to that filter; and

using said image processing apparatus to identify image portions from said plurality of image frames that exhibit said differentiable characteristic in response to a logical combination of said discrete output values for each of said at least one filter for said plurality of image frames as potentially having a region of interest representing the common object of interest.

2.   The method of claim 1 wherein image frames not having at least a potential region of interest are discarded from further processing.

3.   The method of claim 1 wherein said common object of interest is a two-dimensional object.

4.   The method of claim 1 wherein said at least one imaging device generates images in a spectral band other than the visible spectrum.

5. The method of claim 1 wherein said plurality of image frames are generated by at least two imaging devices.

6. The method of claim 5 wherein at least one of said imaging device generates images in a spectral band other than the visible spectrum.

7. The method of claim 3 wherein said at least two imaging devices have overlapping fields of view.

8. The method of claim 3 wherein said at least two imaging devices have different fields of view selected from the set consisting of: a side view, a forward view, a downward view and a rearward view.

9. The method of claim 1 wherein said plurality of image frames are operably generated by a digital image capture device that is recording said digital image as images selected from the set consisting of: live images, pre-recorded images, a series of still images or a digitized version of an original analog image sequence.

10. The method of claim 1 further comprising the steps of:

for each digitized image frame identified as having a region of interest:

segmenting said frame into a plurality of non-overlapping image segments;

identifying a segment that exhibits a differentiable characteristic as a

search space; and

expanding said search space to include segments adjacent to said

segment that exhibits the differentiable characteristics.

11.   The method of claim 10 wherein the step of expanding further comprises the step of:

utilizing morphology techniques to grow and erode said search space by

adding or subtracting segments adjacent said search space until either said search

space meets or fails to meet uniform criteria for a differentiable characteristic.

12.   The method of claim 1 wherein said image portion having a region of interest is

filtered after said identifying step.

13.   The method of claim 1 further comprising the step of:

relating a plurality of regions of interest from said plurality of image frames in

a three-dimensional representation based on a location of said region of interest within

said image frame.

14.   The method of claim 13 wherein said plurality of regions of interest are dynamically

sized in said three-dimensional representation.

15.   The method of claim 1 further comprising the step of:

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relating each image portion with a location data metric associated with that image portion.

16. The method of claim 1 wherein the step of using said image processing apparatus to identify image portions comprises saving to a separate memory each of said separate image portions.

17. The method of claim 1 wherein the step of using said image processing apparatus to identify image portions comprises creating a record in a database of a pointer to a bitmap image representing each of said separate image portions.

18. The method of claim 1 wherein said image frames comprise a large number of frames of digitized image data and the method is used as part of a graphic-based search engine to recognize a desired single object within said large number of frames of digitized image data.

19. An image processing apparatus for determining whether a plurality of image frames may contain a common object of interest, said apparatus comprising:

a frame buffer that stores digitized pixels of said plurality of digitized image frames wherein said plurality of image frames are generated by at least one imaging device;

at least one filter operably connected to said frame buffer that generates a discrete output value in response to each pixel of each image frame, wherein each

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filter screens for a differentiable characteristic associated with an object of interest that is unique to that filter; and

an image processor that identifies image portions from said plurality of image frames that exhibit said differentiable characteristic in response to a logical combination of said discrete output values for each of said at least one filter for said plurality of image frames as potentially having a region of interest representing the common object of interest.

20. The apparatus of claim 19 wherein image frames not having at least a potential region of interest are discarded from said frame buffer.

21. The apparatus of claim 19, wherein said common object of interest is a two-dimensional object.

22. The apparatus of claim 19 wherein said at least one imaging device generates images in a spectral band other than the visible spectrum.

23. The apparatus of claim 19 wherein said plurality of image frames are generated by at least two imaging devices.

24. The apparatus of claim 23 wherein at least one of said imaging device generates images in a spectral band other than the visible spectrum.

25.   The apparatus of claim 23 wherein said at least two imaging devices have overlapping fields of view.

26.   The apparatus of claim 23 wherein said at least two imaging devices have different fields of view selected from the set consisting of: a side view, a forward view, a downward view and a rearward view.

27.   The apparatus of claim 23 wherein said plurality of image frames are operably generated by a digital image capture device that is recording said digital image as images selected from the set consisting of: live images, pre-recorded images, a series of still images or a digitized version of an original analog image sequence.

28.   The apparatus of claim 19 wherein the image processor further identifies segments of interest within each image frame identified as having a region of interest by segmenting said image frame into a plurality of non-overlapping image segments, searching through a search space of said segments to identify a segment that exhibits a differentiable characteristic as a search space, and expanding said search space to include segments adjacent to said segment that exhibits the differentiable characteristics.

29.   The apparatus of claim 28 wherein the image processor utilizes morphology techniques to grow and erode said search space by adding or subtracting segments adjacent

said search space until either said search space meets or fails to meet uniform criteria for a differentiable characteristic.

30. The apparatus of claim 19 further comprising at least a second filter operably connected to said image processor that filters said image portions which are identified as having a region of interest.

31. The apparatus of claim 19 wherein said image processor relates a plurality of regions of interest from said plurality of image frames in a three-dimensional representation based on a location of said region of interest within said image frame.

32. The apparatus of claim 31 wherein said plurality of regions of interest are dynamically sized in said three-dimensional representation.

33. The apparatus of claim 19 wherein said image processor includes a separate memory into which each of said separate image portions are stored once identified.

34. The apparatus of claim 19 wherein said image processor includes a database and creates a record in said database of a pointer to a bitmap image representing each of said separate image portions that are identified.

35.   The apparatus of claim 19 wherein said image frames comprise a large number of frames of digitized image data and the apparatus is used as part of a graphic-based search engine to recognize a desired single object within said large number of frames of digitized image data.

36.   A computer-readable storage media storing:

at least one computer program that operates to identify whether a plurality of image frames may contain a common object of interest by:

applying at least one filter to each of said plurality of image frames to generate a discrete output value, wherein each filter screens for a differentiable characteristic associated with an object of interest that is unique to that filter; and

identifying image portions from said plurality of image frames that exhibit said differentiable characteristic in response to a logical combination of said discrete output values for each of said at least one filter for said plurality of image frames as potentially having a region of interest representing the common object of interest.

37.   The storage media of claim 36 wherein image frames not having at least a potential region of interest are discarded from further processing.

38.   The storage media of claim 36 wherein said common object of interest is a two-dimensional object.

39.   The storage media of claim 36 wherein said plurality of images are generated by at least one imaging device that generates images in a spectral band other than the visible spectrum.

40.   The storage media of claim 36 wherein said plurality of image frames are generated by at least two imaging devices.

41.   The storage media of claim 40 wherein at least one of said imaging devices generates images in a spectral band other than the visible spectrum.

42.   The storage media of claim 40 wherein said at least two imaging devices have overlapping fields of view.

43.   The storage media of claim 40 wherein said at least two imaging devices have different fields of view selected from the set consisting of: a side view, a forward view, a downward view and a rearward view.

44.   The storage media of claim 40 wherein said plurality of image frames are operably generated by a digital image capture device that is recording said digital image as images selected from the set consisting of: live images, pre-recorded images, a series of still images or a digitized version of an original analog image sequence.

45.   The storage media of claim 36 wherein the computer program further operates by:

for each digitized image frame identified as having a region of interest:

segmenting said frame into a plurality of non-overlapping image segments;

identifying a segment that exhibits a differentiable characteristic as a search

space; and

expanding said search space to include segments adjacent to said segment that

exhibits the differentiable characteristics.

46.   The storage media of claim 45 wherein the expanding of said search space is

accomplished by utilizing morphology techniques to grow and erode said search space by

adding or subtracting segments adjacent said search space until either said search space meets

or fails to meet uniform criteria for a differentiable characteristic.

47.   The storage media of claim 45 wherein said image portions having a region of interest

are filtered after said identifying step.

48   The storage media of claim 36 wherein the computer program further operates by:

relating a plurality of regions of interest from said plurality of image frames in a three-

dimensional representation based on a location of said region of interest within said

image frame.

49.   The storage media of claim 48 wherein said plurality of regions of interest are dynamically sized in said three-dimensional representation.

50.   The storage media of claim 36 wherein the computer program further operates by relating each image portion with a location data metric associated with that image portion.

51.   The storage media of claim 36 wherein the computer program saves to a separate memory each of said separate image portions.

52.   The storage media of claim 36 wherein the computer program creates a record in a database of a pointer to a bitmap image representing each of said separate image portions.

53.   The storage media of claim 36 wherein said image frames comprise a large number of frames of digitized image data and the storage media is used as part of a graphic-based search engine to recognize a desired single object within said large number of frames of digitized image data.

54.   A computer system for identifying whether a plurality of image frames may contain an object of interest comprising:

        a first means for storing a plurality of image frames potentially having an object of interest,

a second means for screening each of said image frames to determine whether an object of interest is present within said frames and generating a value output signal corresponding to each of said image frames,

a third means for processing said value output signals to determine if an object of interest is present, and if so, identifying a specific region of the frame that contains the object of interest.

55.   The computer system of claim 54 wherein the first means comprises an image frame buffer for holding and sequencing the image frames.

56.   The computer system of claim 54 wherein the second means comprises a filter for screening the image frames for a characteristic particular to the filter.

57.   The computer system of claim 54 wherein the third means comprises a computer processing system for determining whether an object of interest is present, and if so, identifying the specific region of the frame where the potential object of interest is located.

58.   A method of identifying whether a plurality of image frames may contain a common object of interest comprising the steps of:

receiving a plurality of image frames in an image processing apparatus wherein said plurality of image frames are generated by at least one imaging device;

separating each image frame into at least two channels of data;

applying at least one filter to each of said two channels of data of said plurality of image frames to generate a discrete output value, wherein each filter screens for a differentiable characteristic associated with an object of interest that is unique to that filter; and

using said image processing apparatus to identify image portions from said plurality of image frames that exhibit said differentiable characteristic in response to a logical combination of said discrete output values for each of said at least one filter for said at least two channels of data as potentially having a region of interest representing the common object of interest.

59.   A method of identifying whether a plurality of image frames may contain a common object of interest comprising the steps of:

receiving a plurality of image frames in an image processing apparatus wherein said plurality of image frames are generated by at least one imaging device;

applying at least one filter to each of said plurality of image frame; and

using said image processing apparatus to identify image portions from said plurality of image frames as potentially having a region of interest representing the common object of interest based on a differentiable characteristic associated with an object of interest from said at least one filter.